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Wait, William Bell

Comments on report of the Universal Type Committee

[S.l.]

[1908]

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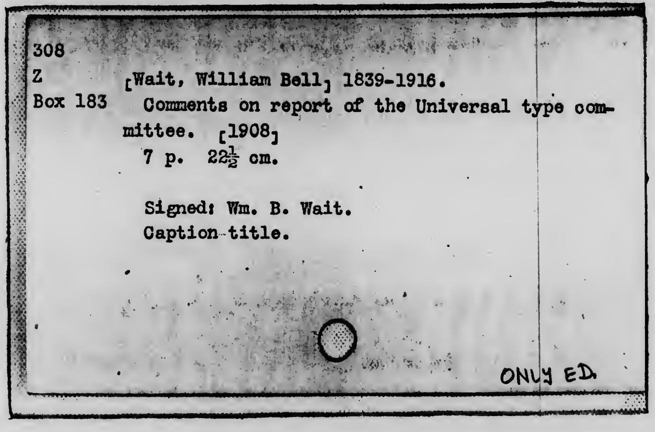

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[Wait, William Bell] 1839-1916.
Comments on report of the Universal type committee. [1908]
7 p. 22½ cm.

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# Comments on Report of the Universal Type Committee.

A Committee of five was some time since selected to consider the subject indicated by the above title, and its report was made known in July, 1907.

As the formation of this "Committee" was in the interest of American Braille, its report should receive consideration.

At the outset, a sub-committee of *two* was appointed "to carry on in particular the work of investigating and comparing existing systems." The main body of the report is contributed by this sub-committee, which says: "The chief investigations undertaken by us have been along three lines:

1. "An actual illustration and mathematical computation of the absolute and relative areas occupied by, and the numbers of embossed points in, a series of very unlike compositions written or printed in the various systems and sub-systems under consideration;
2. "The determination, by actual experiments with various readers and writers, of the advantages and disadvantages of certain characteristics of various systems, with reference to their effect in enhancing or impairing the legibility of the text to be read and in facilitating or retarding the writing of the same with a machine; and
3. "The undertaking of a general consensus of the opinions, preferences and suggestions of those prepared by experience and observation to form and express an intelligent judgment upon the various phases of our current print problem."

Passing over a very minute recital of data and detail, I desire to notice briefly some of the experiments and conclusions of the sub-committee. Speaking of reading and writing, it says:

1. "*Within limits*, a system using few dots can be read more rapidly and accurately than one using many dots."

Within what limits? Why should not the system using fewest dots always be read more rapidly and correctly than one using many dots? Light will be thrown on this subject a little later.

2. "A system using few dots can be written with the Hall-Braille writer more rapidly and accurately than one using many dots."

In other words, the effectiveness of the Hall-Braille writer, which makes from one to six dots, diminishes as the number of dots to be struck at once increases. The New York Point writer, the Kleidograph, strikes up eight and even ten points at once, and with a facile writer few or many points will make no material difference. The Committee seems not to have known about the Kleidograph.

3. "A system using characters one, two, and three points high can be read as rapidly and accurately as one using no character more than two points high, *provided the number of dots used be the same.*"

The form of this statement shows that the question at issue is whether a vertical system (American Braille) can be read as rapidly and correctly as a horizontal or (New York Point) system; and it is alleged that the only fact that will affect the result is a difference in the number of dots used. There is no intimation as to how the dots are to be used, and the form of the statement suggests that there is a difference in favor of New York Point, which the Committee thinks is due to a difference in the number of dots used, and concludes that if that difference were removed the American Braille would be upon a level with the New York Point. The Committee will supply an answer a little later.

5. "The equivocal whole-word signs are a decided hindrance in reading, both to speed and accuracy."
7. "The equivocal part-word signs lessen, slightly, both speed and accuracy in reading."
8. "The use of two single-dot characters for a and e, so nearly in the same position as are dots 1 and 2, causes some hesitation and inaccuracy in reading. And, in general, when a character is so used as to allow uncertainty in the mind of the reader as to *its level in the cell, a guessing process is introduced which adds to the mental labor, distracts the attention and retards progress.*"

The equivocal character of the symbols of the Braille musical notation is a radical defect, for which, however, there can be no remedy. It will be seen that in the foregoing specifications this Committee lays great stress upon the fact that many of the signs in the literary code are equivocal, and shows that they obstruct facility in reading and therefore hinder all the mental processes based on reading.

Obviously, this greatly lessens the utility of text-books in every subject, induces a slow habit of thought, makes progress needlessly slow, and causes educational waste along the whole line. This inherent ambiguity of many of the "American Braille" signs explains the limitations recognized in the foregoing first item.

How it happens that signs with few dots can hinder rather than help reading is readily explained. In the Braille vertical cell holding six points it is plain that *one* dot may have *six different places.* As between top and bottom it would be distinguishable, but as between right and left, or between top and middle, bottom and middle, it would be doubtful as to position, and therefor equivocal.

In item 8, the Committee points out a specific case, that of ambiguous *a* and *e* in "American Braille," the former being at the left upper corner and the latter at the left middle of the cell. This ambiguity of "American Braille" supplies the necessity for the proviso in the third item.

The letter *a* in New York Point has two dots, while the letter *e* has one dot. In "American Braille" each of these vowels has *one* dot and therefore is ambiguous. If, now, these letters were each one dot in New York Point "the same" as in "American Braille," then the New York System would in this respect be as ambiguous as the "American Braille."

The cause of ambiguity is not the number of dots, few or many, but is the fact that in "American Braille" the same formation of dots has different positions in the cell, so that two things must be at once observed, the number of dots and their true position.

In "American Braille" some 15 signs are involved in this ever hindering doubt, while in New York Point the fact that there are only two lines of points, three vowels falling in one line against three consonants in the other, ambiguity does not arise.

Two things are plain; first, if all the possible signs of the Braille, 63 in number, be used, ambiguity ensues, entailing irreparable loss upon every user of such a system, although he may not be conscious of it. On the other hand, the elimination of all equivocal signs will reduce the number from 63 to about 48, the precise number of *unequivocal New York signs formed within the area of the third base,* which corresponds to the vertical base of Braille. In addition to these, there are 81 unequivocal signs of the fourth New York base, making a grand total of 129 unequivocal signs in New York Point, against 48 unequivocal signs in *any* Braille code.

The Committee has rendered an important service in once more making clear this radical defect of "American Braille," and of the parent stem from which it was derived.

On the important economic phase of writing and printing, the Committee says:

> "The experimental work and the mathematical determination of some of these disputed points were thus rendered necessary."
>
> "Four unlike selections of prose and verse, containing 1,379 words in nine paragraphs of approximately 153 words each, expressed with 143 capital letters, 5,841 lower-case letters, and 243 marks of punctuation (exclusive of hyphens at ends of lines to indicate the breaking of words between syllables), were stereotyped in each of five distinct forms or sub-systems of punctographic printing, with *the same embossing apparatus and as nearly as possible upon a common scale;* and a careful computation of the various classes of characters and intervals employed was undertaken with a view of determining more conclusively some of the disputed questions as to relative space occupied and numbers of points to be embossed in writing and printing and distinguished in reading."
>
> "The pieces selected for this purpose were: (1) The Preamble to the Constitution of the United States, in one paragraph of 52 words (269 letters); (2) Bryant's poem 'Thanatopsis,' of 81 lines of blank verse in three paragraphs of 641 words (2,780 letters); (3) President Lincoln's Gettysburg Speech, in three paragraphs of 271 words (1,147 letters); and (4) the twelfth chapter of Romans (English Revised Version of 1881), in two paragraphs of 415 words (1,788 letters), exclusive of verse numbers" * * *
>
> "Multiplying the Braille line lengths thus obtained by 4½ units of vertical extension (including suitable interlineal spacing), and the corresponding New York line lengths by 3½ like units, the proper surface areas are obtained, as follows: Alphabetical American Braille, 7.501 square feet; alphabetical New York Point, 5.400; normal New York Point, 4.880; normal American Braille, 5.948; American Braille with New York intervals, 4.920 square feet, respectively. Thus, it will be seen that when the American Braille is printed *with the same intervals as those employed in the New York System,* the areas occupied differ by only about 1 per cent."

The foregoing presents too many errors for examination in detail and will be considered in a general way.

The method used in equalizing the two systems was substantially this: As the scale or actual dimensions mechanically appliable in the proper construction of the New York System are not appliable to the Braille structure, the operation was reversed, and the scale or dimensions of the Braille structure were applied to the New York System, thus producing the letters and signs, and the word and line spacing, *all in exaggerated, incorrect and misleading* dimensions.

The two systems having been *equalized* in this manner, the Committee then proceeds to a mathematical computation of the absolute and relative areas, with a view of determining more conclusively the relative space occupied in writing and printing.

The Type Committee says: "Four unlike selections were stereotyped * * * *with the same embossing apparatus, and as nearly as possible upon a common scale.* * * * The proper surface areas are obtained as follows: Alphabetical American Braille, 7.501 square feet, or 1,080 square inches; in Alphabetical New York Point, 5.400 square feet, or 777 square inches. Excess of American Braille, 39 per cent."

The final result is stated as follows: "Thus it will be seen that *when* American Braille is printed with the *same intervals* as those employed in the New York System, the areas occupied differ by only about 1 per cent." But the Committee leaves the reader to find out that even this slight advantage is in favor of New York Point.

Suppose now that American Braille or any other Braille should be adopted instead of New York Point, the schools for the blind, the publishers of embossed literature and the blind people of the whole country, who consume large quantities of paper in embossed writing, would be compelled to make a larger and wasteful outlay for a needlessly large quantity of paper.

The paper bill of the American Printing House for the Blind and the Ziegler Magazine for one year is now approximately $6,300. In printing, the cost of paper is only a small fraction of the whole expense, the outlay for press work, binding and other items of "shop cost" being at least five times the cost of paper, or $31,500, making a total of $37,800. In Braille practice, this amount would have to be increased at least $26,838, making a total of $64,638, of which $26,838 would be needless waste.

If the methods of the Universal Type Committee are correct they should be exemplified in the every-day practice of embossed printing, when carried on in the usual commercial business way.

Through the courtesy of Mr. Walter G. Holmes, the efficient manager of the Ziegler Magazine, the same four selections have been embossed on the Stereograph, a metal embossing machine designed for New York Point, and on the Stereotyper, designed for the Braille system, the dimensions and adjustments of the working parts of each machine being those demanded by each system respectively. When the four selections were so printed in each system with full spelling, full punctuation and without capitals, the areas occupied were:

| | |
|---|---|
| American Braille, .................. | 787.33 square inches. |
| New York Point .................... | 628.65 square inches. |
| | 158.68 square inches. |

A peculiar phase of the use of capitals is presented by these selections.

In New York Point there are three methods of capitalizing; one retains the small letter form with an enlarged dot, one employs the signs of the fourth base with small dots, and still another uses the fourth base with enlarged dots. An interesting feature of the fourth-base capitals is that they are built upon the small letters.

The "American Braille" *has no true capitals.* The practice is to place before words requiring capitals a sign, identical with the *period*, and then begin the word with the usual small letter. This practice requires two full cells.

In New York Point the fourth-base capitals are two-thirds larger than the average sign of the lower-case letters, while in "American Braille" the area used is twice as great as for the small letters, and the area for each Braille capital sign and letter is 60 per cent. greater than the largest New York capital.

It would therefore appear that more space will be required in writing the selections with capitals than without them. Strangely enough, this is not so, for the page space occupied is the same in both cases.

The unused space at the verse ends in Romans, and the line ends in Thanatopsis, permits capitals to be used without increasing the page surface occupied. These two selections form 85 per cent. of the whole area and furnish 126 out of the 143 capitals used. If compact prose containing many capitals had been chosen, the showing would be very different, and it would appear that the versified style of composition was selected in order to favor "American Braille" at a point where it is extremely weak.

If the result given as the Type Committee's area be compared with the area as shown in regular Braille practice, a remarkable discrepancy will be disclosed.

| | |
|---|---|
| The area given by the Committee for Alphabetical American Braille is 7.501 square feet, or ........... | 1,080 square inches |
| The same in American Braille by regular practice on Braille Stereotyper is........................... | 787 square inches |
| Excess of space by Type Committee practice.......... | 293 square inches |

or 37.23 per cent *over* standard Braille usage.

This not only discredits the Committee's methods and findings, but shows that they would have been more consistently engaged in finding a "uniform scale" for Braille practice.

But this is not the whole case, for embossed printing is done either on one side or on both sides of a leaf. When done on one side the lines are closer than for *two-side* interline printing, which requires wider line spacing.

In these examples the Braille has the minimum line space for *one-side* work, while the New York has the wider line space for *two-side* work.

If the Braille line spaces be widened to provide for two-side impressions, there will be a loss of 8 lines from Ziegler page of 29 lines, as shown by the printed selections. This is a loss of about 28 per cent. and shows the actual difference in cost in favor of the New York System to be about 71 per cent. on one-side work with two-side line space.

In two-side printing, New York Point has *twice* as many lines as there are on one-side. This is a gain of 100 per cent., and is exemplified in the Sunday School Weekly for July 27, 1908, printed in New York Point. This is the first example of this kind of printing ever done on a press working at usual speed.

For two-side printing in Braille, the necessary widening of line space lessens the number of lines from 29 to 21 to the page, or 42 to the leaf, making a gain of about 13 lines, or 46 per cent. over one-side work.

If the four selections are interlined in each case with full spelling, punctuation and capitals, the Braille will occupy 8.76 pages or 4.38 leaves, while the New York code will occupy 5.10 pages or 2.55 leaves, a difference of 71 per cent. in favor of New York Point. It ought to be stated that the original New York Stereograph was designed in 1894 for the purpose of embossing both sides of the same sheet, as is shown by the adaptation of the carriage for interlining. This was done in the hope that some way might soon be devised for interlining, but this difficult problem has remained unsolved until recently, when Mr. B. B. Huntoon, Principal of the Kentucky School for the Blind and Superintendent of the American Printing House for the Blind, accomplished the feat of printing in New York Point, on both sides of the sheet at one impression, from plates embossed on both sides by the New York Stereograph, and THUS AT A SINGLE STROKE GREATLY REDUCING THE COST OF BOOKS IN NEW YORK POINT.

Inasmuch as writing *in relievo* is now one of the most essential factors in the education and life work of the blind, a test has been applied by writing the four chosen selections on the Kleidograph, the New York Point writer, and on the Braille writing machine.

The showing made by the four selections is as follows:

| | *New York Point.* | *American Braille.* |
|---|---|---|
| Preamble | 20.88 square in. | 32.37 square in. |
| Thanatopsis | 280.12 square in. | 545.37 square in. |
| Gettysburg Speech | 87.75 square in. | 257.70 square in. |
| Romans, XII Chapter | 146.25 square in. | 262.32 square in. |
| | 535.00 square in. | 1,097.76 square in. |

Excess of American Braille......... 562.76 square in., or 105.18 per cent.

With capitals, punctuation, and with standard contractions of each system, the space occupied by the four selections is as follows:

| | |
|---|---|
| New York Point | 331 square inches. |
| American Braille | 738 square inches. |

Excess of American Braille......... 407 square inches, or 122.96 per cent.

This large condensation in New York Point is effected by the use of *unequivocal* and appropriate signs in the place of many very common words and letter groups. They disturb neither spelling nor syllabication and are easily learned and adapted.

The manifest insufficiency of American Braille in the important matter of natural and lucid condensation may explain the opposition of American Braillists to the use of shortened forms.

Several things ought now to be clear.

1. That the New York Point and American Braille systems differ radically in principle and in practice.

2. That the dimensions mechanically appliable to the proper construction of New York Point are not appliable to the structure of appliances for either writing or printing the vertical, or Braille, system.

3. That the arguments presented in support of "American Braille" are fallacious and misleading.

4. That "American Braille" is discredited for poverty of signs, for equivocation and ambiguity in both literature and music, for waste of time and money, for inducing halting, groping mental habits, and for its marked unethical features and tendencies.

5. That its introduction was unwarranted and exhibited a disregard of the interests of the schools and of the blind.

6. That as there was no good reason for the *introduction* of American Braille in 1892, so now there is no good reason for its adoption or preference over New York Point.

WM. B. WAIT.

July, 1908.

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